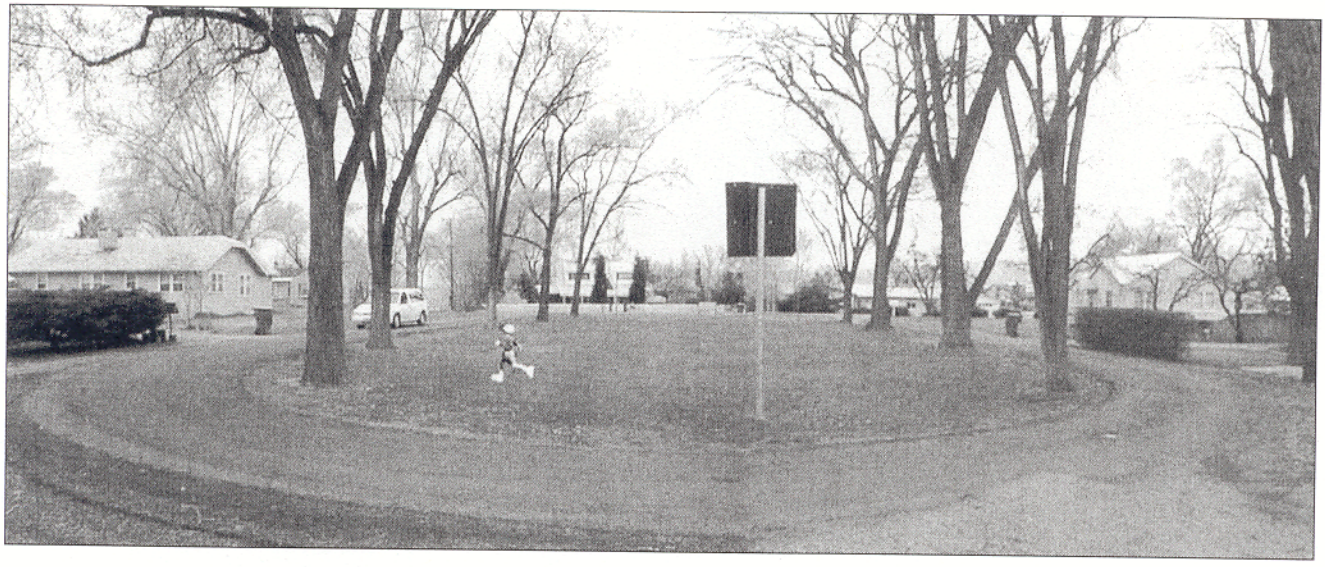
PAS Memo

AMERICAN PLANNING ASSOCIATION

MAY 1998



Mike Pelletier

A 16-foot-wide loop lane encircling a small park and serving seven homes in the Hillcrest Park neighborhood of Grand Junction is serving as a prototype for a new subdivision development standard.

The Loop Lane: A Cul-de-Sac Alternative

By Mike Pelletier

The loop lane, a new style of neighborhood street that offers a promising alternative to conventional cul-de-sacs, is in the process of being incorporated into residential development standards in Grand Junction, Colorado. The design evolved from an effort to improve newly developing subdivisions by assimilating the favorable traits of existing high-quality developments in Grand Junction. The design attempts to meld the functionality of up-to-date development standards and the quaint charm of traditional neighborhoods, with the added bonus of additional neighborhood park land. In Grand Junction, the loop lane is being modeled after the Hillcrest Park area of the city, which is a 60-by-180-foot park surrounded by a 12-foot lane.

In 1995, Hillcrest Park residents were surveyed to determine how well the loop lane and park functioned. The survey addressed the use of the park (how often, for what, and by whom), parking, traffic speed, lane width, traffic flow, and the perceived value of the park. The survey showed that residents do not have access problems and that they use the park for a multitude of activity, even weddings. Several said the park had helped create community spirit.

The loop lane concept is appealing to planners, residents, and developers because it can be built at a relatively low cost and it adds a measure of livability to subdivisions. It combines two attractive house site amenities—a small useable park and a quiet access lane—without losing a buildable lot (see figure, page 3). While the vehicle dominates the cul-de-sac, the pedestrian dominates the loop lane. More specifically, cars travel at low speeds, there are no parked cars for kids to dart out from behind, and the surrounding homes provide natural surveillance of the park. The design also encourages recessed garages and front porches, which emphasize the human element.

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In designing the loop lane prototype in Grand Junction, planners included several elements to ensure access and safety. First, a 30-foot minimum inside turning radius was established to accommodate service and emergency vehicles. Second, a maximum of seven homes in the loop was set to keep traffic and parking demand low so that vehicle conflicts are minimized on the narrow lane. Guest parking stalls were added at the end of the loop to help discourage parking on the lane. Finally, a maximum depth of 250 feet from the top of the loop to the abutting street was established to keep guest parking within a 125-foot walking distance of each home.

Because the lane is narrow, it functions as a shared driveway rather than a street. A 12-to-16-foot lane width achieves a good

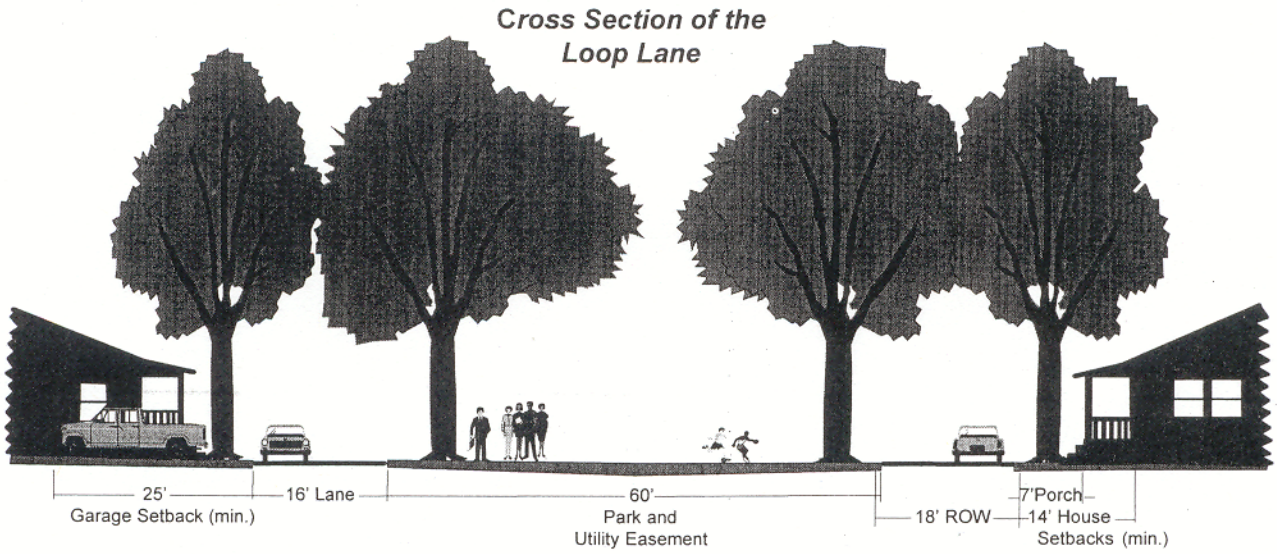
balance between vehicular access and the need to discourage on-street parking and speeding. It provides sufficient width for emergency vehicles while allowing two vehicles to pass at slow speeds. A larger width allowing on-street parking would unnecessarily compromise the aesthetics, the safety of playing children, and the intimate neighborhood scale. While the lane generally functions as a one-way street, designating it as such is unnecessary because of the low traffic.

The 12-to-16-foot width ensures sufficient access for homeowners, as well as fire trucks and garbage trucks. Fire trucks have two accesses and can turn around without performing a 3-point turn, as cul-de-sacs with parked cars normally require. While the lane width is typical of privately owned shared driveways, service vehicles can easily negotiate the lane without backing up. In Grand Junction it was determined that the lanes should be publicly owned to allow for garbage collection, and for police to enforce parking restrictions.

does not go through before pulling in, which is not always immediately evident to drivers entering longer cul-de-sacs. Therefore, the loop provides the low traffic environment people desire, while allowing higher-order streets to provide the necessary connectivity. The result is a hybrid between a grid and curvilinear street system that incorporates the best of both.

Because the lane resembles a driveway in terms of width and vehicle speeds, pedestrians can share the lane with vehicles. Thus sidewalks are needed only on the abutting street, not in the lane. Prohibiting on-street parking on the lane can help prevent the asphalt edge from unraveling. With this in mind, an undefined edge of turf and gravel can be used in lieu of curbs and gutters if favorable drainage conditions exist. This can help create a "rural" feel in an urban setting, which many people desire.

The scale of the loop and relatively low traffic noise make shallow building setbacks another option. The park in the



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(Above) A cross section of the loop lane illustrates the garage and porch setbacks, and the size of the park in relation to the front yards. (Left) A lane of 16 feet (12 feet of pavement and two, two-foot gravel shoulders) ensures sufficient access for homeowners and service vehicles.

The loop does not significantly compromise the street connections in the surrounding area, since it has a maximum length of 250 feet. In situations that require more pedestrian connectivity, such as loop lanes near schools, a cut-through can be added at the end of the loop. Drivers also benefit from the relatively short length because they can easily tell that the loop

center of the loop creates a large separation between the homes and provides an alternative location for utilities that would otherwise be placed in the front yard. This allows smaller front yards that help offset the land used by the park. Garages are significantly recessed, further emphasizing a human scale. The setbacks shown in the cross section recess the garage 18 feet behind the porch and 11 feet behind the house.

Cost estimates show the loop lane (excluding landscaping) to be very similar to a cul-de-sac. Both designs require roughly the same amount of asphalt and have similar utility extension costs.

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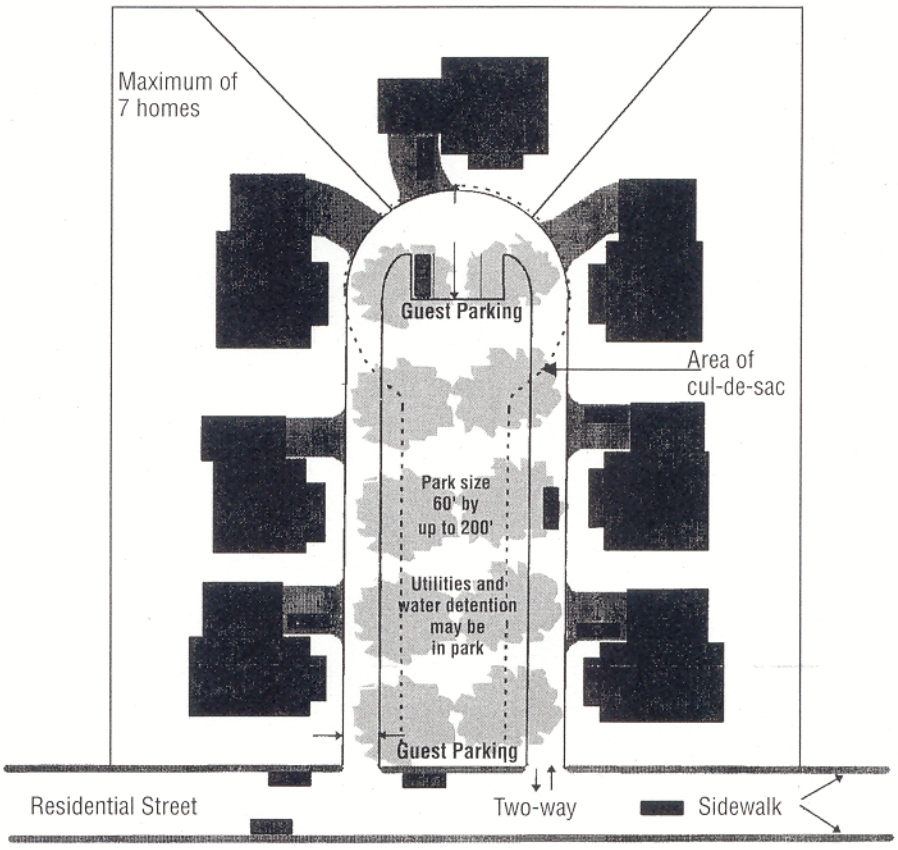
Although the loop lane does not require concrete sidewalks, drainage conditions may dictate curbs and gutters on both sides of the lane. If curbs and gutters are not used, the savings will offset some of the landscaping costs. Maintenance costs for the grass and trees should be reasonable when spread out over the number of homes surrounding and near the park.

It is important that the surrounding residents have a sense of ownership of the park, especially if they are charged with maintaining it. Fronts of homes surround the park, and its rectangular shape is suitable for many activities. The park's small size controls maintenance costs and tends not to attract users who would come by automobile, since generally they would prefer larger parks with playground equipment. This helps alleviate concerns that homeowners are maintaining a park for noncontributing people. Despite the park's small size, it functions as well or better than many larger parks because of its shape and safe surroundings.

The prototypical loop lane is 250 feet in length, accommodates seven lots, and has a lane width of 16 feet. It is similar in overall size to a conventional cul-de-sac.

Streets (1990). Shared driveways are described as "an economical and attractive method of serving up to five or six homes." The shared driveway "should be just wide enough for two cars to pass, i.e., approximately 16 feet." Grand Junction's loop lane is conservative in comparison because it has a maximum of seven homes in a looped configuration or 3.5 homes on each side of the loop.



Steps for Developing a Loop Lane Standard

The loop lane concept is a readily adaptable tool for communities seeking an alternative to cul-de-sacs or seeking efficient and cost-effective active open space designs. Twelve steps for developing a loop lane standard are presented here, with specific details on how some of the issues are being addressed in Grand Junction.

1. Determine the optimal lane width. Setting the lane width should be based on goals of discouraging on-street parking, providing vehicular access (including emergency), and encouraging slow speeds for pedestrian safety. In Grand Junction, a lane width of 16 feet was determined to be optimal. Wide streets are out of scale with the design concept. On-street parking on the outside edge of the loop reduces the functional width of the lane, can hinder access by emergency vehicles, and decreases safety for children because drivers cannot see them behind parked cars. Because the lane is shared by vehicles and pedestrians, sidewalks are not needed. Local officials in Grand Junction familiar with Americans with Disabilities Act requirements accepted the elimination of sidewalks.

A 16-foot width for shared driveways is recommended by the American Society of Civil Engineers, the National Association of Home Builders, and the Urban Land Institute in *Residential*

2. Provide a sufficient turning radius to accommodate the largest vehicle used in residential areas. In Grand Junction, the fire department requested an inside turning radius of 30 feet, which is greater than the turning radii required by moving vans and garbage trucks. As long as minimum turning radii are met, the shape of the loop lane can curve or meander. This allows flexibility for site specific conditions, such as topography and parcel shapes.

3. Designate the loop as either one-way or two-way. If the lane is 16 feet wide, then a two-way designation is certainly appropriate, since passenger vehicles can pass each other at low speeds. If the lane is 12 feet wide, then a one-way designation may seem appropriate. However, enforcement would be costly and unnecessary since the problems created are generally only an inconvenience and not safety related.

Regardless of its designation, the separation of the two ends of the lane are close enough that most vehicles entering the loop will use it as a one-way. However, the homes closer to the street will likely take the shortest route when entering and leaving the loop.

One Hillcrest Park resident said that he passes another vehicle in the lane roughly twice a year. When that occurs, an individual driveway or gravel shoulder can provide space for pulling to the side when two cars must pass one another.

4. Determine the maximum number of homes or amount of traffic on the loop. Based on the experience with Hillcrest Park, seven single-family homes generate a daily traffic count suitable for a 16-foot-wide looped lane with a depth of 250 feet. Also, it does not create a guest parking demand that detracts from the design of the park by requiring too many spaces.

5. Establish a maximum length from the street to the end of the loop. Considerations for determining the length include the need for convenient guest parking, fire department concerns, and the need to discourage speeding. A depth of 250 feet provides guest parking areas at a reasonable walking distance to all homes and limits lane sections to a length that does not encourage speeding. In addition, the length does not significantly detract from the overall street connectivity.

6. Determine the number of on-street and off-street parking spaces per home. Requiring four on-site spaces per home and one off-street space per home is fairly conservative. This normally equates to a two-car garage with two spaces in front of the garage. The loop lane design can easily accommodate one off-site guest parking space per home. This amount exceeds a typical standard found in parking literature, which is one off-site space per two homes.

Stalls at end of a loop are convenient and essentially widen the path for large vehicles making a turn at the end of the loop. Guest parking stalls also provide a sizable place for activities requiring a hard surface, such as basketball. Parallel parking spaces along the straight sections of the lane decrease the aesthetics of the park and widen the lane unnecessarily. Instead, parking spaces can be provided on the adjacent street in front of both the park and the corner homes. Since a driveway width equals the length of one parallel parking space, requiring corner homes to access their garages off the lane creates two spaces along the adjacent street.

7. Establish a minimum separation between the two ends of the loop lane on the abutting street. Requiring a distance twice that of the minimum inside turning radius (e.g., a 30-foot turning radius would require a minimum 60-foot lane separation) encourages a rectangular park, which is a functional shape. The minimum separation also minimizes significant traffic conflicts for vehicles entering and exiting the loop off of collector and residential streets.

8. Determine the location of utilities. Wet and dry utilities can be located either in the park or in the front yards of the homes. It is important to locate any utility pedestals along the side of the park so that they do not interfere with activities.

Locating utilities in the park allows for a single line in as opposed to the looped system needed when using front yards. This savings is offset by longer service lines and the need for conduit underneath the lane. The cost of the two methods is roughly equal.

9. Decide if the park should be used for stormwater detention. This uses land efficiently, however, only gentle slopes should be allowed to maintain the park's recreational function. In addition, plowed snow or even an ice rink can be placed in the park.

Developers should be required to install landscaping and irrigation. After the lane is developed, the park may remain public, or become privately owned and maintained by a homeowners association.

10. Determine if curbs and gutters should be required. Curbs and gutters are needed for drainage, street sweeping, and to protect the edge of asphalt from unraveling under stress from parked cars. Since cars will not be parking on the lane, unraveling is less of a problem. Thus, curbs and gutters are needed only for drainage or if street sweeping is desired. With small building setbacks, curbing provides a desirable hard edge. With large building setbacks and no curb, a soft undefined edge can create a rural feel.

The amount of asphalt and utility costs are roughly the same for both a cul-de-sac and a loop lane. Essentially, if curbs and gutters are placed on the outside of a loop lane, the cost will roughly equate to a standard cul-de-sac, excluding the landscaping costs. If curbs and gutters are not used then the savings will help offset the cost of landscaping the park.

11. Determine the porch, house and garage setbacks. If utilities are placed in the park, smaller front yards are possible. Setbacks of seven feet for the porches and 14 feet for houses may be appropriate.

Porches can buffer houses from the lane. In addition, the porch setback can provide, for example, eight feet (7 feet plus 1 foot of right-of-way) of landscaping area that provides adequate room for a shade tree.

For a 16-foot-wide lane, garages should have a 25-foot setback with driveway flare radii of five feet. This is based on the turning radius of a 7-by-19-foot vehicle (i.e., Chevy Suburban) coming off a 16-foot-wide lane.

12. Decide who will own and maintain the lane and the park. The lane should remain a public street to provide sufficient access for public services, such as garbage collection and street sweeping. It also allows the police to enforce parking restrictions on the lane.

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The *PAS Memo* is a monthly publication for subscribers to the Planning Advisory Service, a subscription research service of the American Planning Association: Frank S. So, Executive Director; William R. Klein, Director of Research.

The *PAS Memo* is produced by APA staff in Chicago. Research and writing by Research Department staff: Marya Morris and Megan Lewis, Editors. Production by Publications Department staff: Cynthia Cheski, Assistant Editor; Lisa Barton, Design Associate.

Printed on recycled paper, including 50-70% recycled fiber and 10% postconsumer waste.